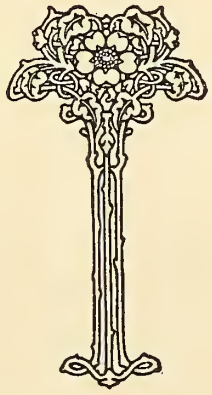
# COMMERCIAL CULTIVATION

*of*

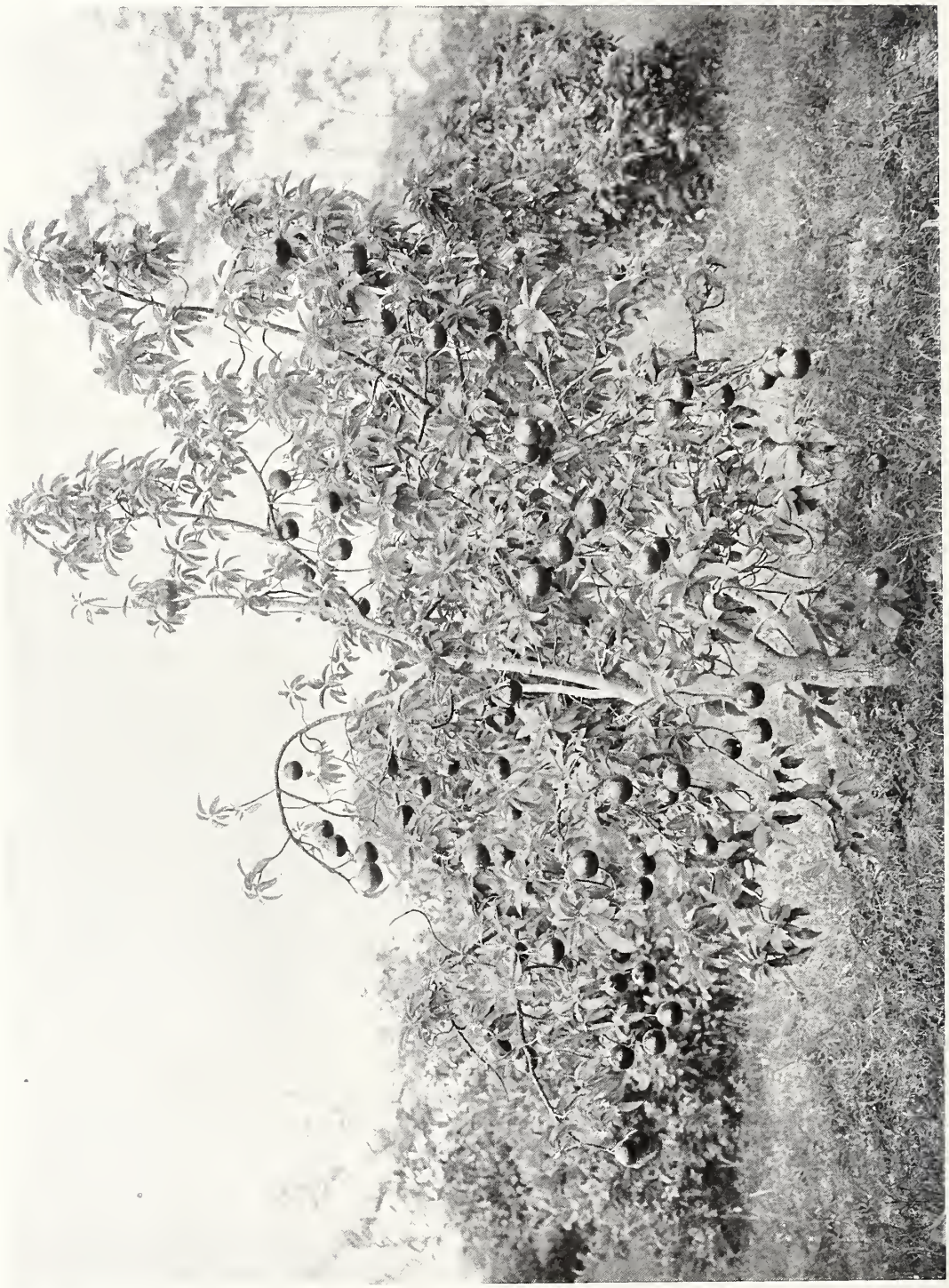
# AVOCADO
# AND
# MANGO



*By*

GEORGE B. CELLON

TROPICAL GROVE - - MIAMI, FLORIDA, U. S. A.



Trapp Avocado. Third Crop, 138 Fruits on Five Year Old Budded Tree.

# COMMERCIAL CULTIVATION

OF

# AVOCADO AND MANGO

BY

GEORGE B. CELLON, MIAMI, FLORIDA

The production of fruit from a few trees on a city lot or in a farm-yard, where there is a constant accumulation of desirable plant food, kept free from weeds and grass for the pleasure and comfort of a home, is so easy that many are attracted into extensive fruit culture without the special talent, training, and experience required for success, which is equal in importance to that required to make any business or profession successful.

Unfortunately, there is now too many engaged in fruit culture who only produce profits for the speculator in the products, and to the prejudice of the consumer, and, therefore, for the depression of consumption and demand.

The commercial cultivation of the Avocado and Mango commenced seventeen years ago by the application by us of methods of budding these trees, and producing them true to variety, and the introduction by us into commercial cultivation of the Trapp and Pollock Avocados and Mulgoba Mango, and the progress in the development of these fruits has never been equaled in so short a time by any other fruit in development of production and market demand.

The demand in market has always been in excess of production of the commercial varieties; therefore, as we have more fruit intelligently produced and marketed, we will have more demand.

The markets for the commercial varieties of Mango has been and is still being destroyed by the marketing of the jungle varieties, which is commercially worse than no fruit at all, and if at this time every jungle Mango tree in Florida of the humbug species —"Turpentine," "Number Eleven," "Bombay," "Sangerpou," "Sandersha," "Mannella," "Phillippein," "Leatheret," and "Silvereen"—were all completely destroyed, within the next ten years the Mango would be the most highly appreciated dessert fruit under cultivation.

## Climatic Conditions

We cannot always determine the possibilities of profits in a locality of the commercial cultivation of the Avocado and Mango by the appearance of a few trees, unless we know how many had been there that had been previously killed by cold; under very severe cold conditions some trees or plants will escape without injury.

The lands on the southern end of the Peninsula of Florida, with soil suited to the Avocado and Mango, in connection with other commercial fruits, protected on the northwest by deep water, with its accessibility to the markets of the United States east of the Rocky Mountains, offers, in our opinion, as strong a commercial fruit proposition as ever existed anywhere at any time. There are no other sections suited to the commercial cultivation of Avocado and Mango that are accessible to these markets except with damaged packages.

The freeze in California in 1913 and in Florida in 1917 we consider of economic value to us as growers by enabling us to more permanently establish these industries.

Anyone contemplating engaging in the commercial cultivation of the Avocado and Mango should first consult the local records of the United States Weather Bureau regarding the local temperatures in Florida during the years 1835–86–95–98 and 1917; from these temperatures subtract four or five degrees, as these readings were taken by the Bureau in city or village, or from the top of tall buildings, and the temperatures would be this much lower in the open country where the trees are to grow.

From our experience and observation the South American type of Avocado and the Mango tree, after they are over two years old, will stand about the same degree of cold without injury, though the Mango has been considered the most susceptible.

There is no place on the mainland of the main Florida Peninsula where the Avocado and Mango tree, one to two years old, are not liable to be injured by cold at some time.

Avocado trees of the South American type, one to two years old, if not artificially protected, will, many of them, be injured at a temperature of 35 degrees Fahrenheit; and many of them will be killed to stubs or to the ground at a temperature of 32 degrees; and at two to four years old many will be injured at a temperature of 30 degrees, and many killed to stubs or to the ground at 27 degrees; and trees five to eight years old may be injured at a temperature of 27 degrees, and killed to stubs or to the ground at a temperature of 24 degrees; and older trees may be injured at a temperature of 27 degrees, and killed to stubs or to the ground at 20 degrees Fahrenheit.

Haden Mango Tree at Tropical Grove.

## Soil and Preparation

The Avocado and Mango can be produced successfully on any of our Florida soils where the trees are not killed by cold, provided it does not overflow at any time; the Avocado tree does not thrive in a soil that becomes "waterlogged" or remains completely saturated after heavy rains.

There is no land in South Florida sufficiently fertile naturally on which the Avocado or Mango can be fruited profitably without artificial fertilizing.

The Mango does not grow successfully on hammock or muck lands, but prefers sandy loams; there is no land in South Florida so poor that the Mango could not be produced profitably on it with intelligent artificial fertilizing.

The coraline rock formation in the soil of the lower East Coast of Florida we consider friendly to the successful growth of fruit trees, provided the surface rock is broken up to a sufficient depth before planting that the trees can develop a complete lateral root system, and the surface can be cultivated economically to control weeds and grass.

The breaking up of the coraline rock underneath the trees deeper than is necessary to set the trees conveniently as they come from the nursery in the position they are to grow, we consider not only unnecessary but a disadvantage to the future success of the trees.

The thorough clearing and preparation of the land before planting is of vital importance, which should be done by completely destroying all wild growth and breaking up the soil to a sufficient depth for the trees to develop a complete lateral root system, which is generally formed from 4 to 6 inches below the surface of the land.

## Plan of Commercial Orchard

The planting of too many varieties of any one kind of fruit in an orchard complicates marketing of the product, but planting an orchard of any one variety of a kind of fruit makes a very risky speculative investment under the present market system in the United States.

For a commercial orchard select the locality best suited to grow the collection of fruit desired; every one has a specialty, and each locality is more or less adapted to some particular kind of fruit; to this specialty add a combination of all other kinds of fruit that can be produced commercially profitable in that locality, making a combination of these kinds of fruits of a collection of only the standard commercial varieties that will extend the season over as long a period as is possible, and by this combination each will sustain and strengthen the other, making a continuous income. Only one variety of a kind of fruit should be planted in a collection if one variety has all the qualities desired; if not, plant the second variety or more to make a complete succession over as long a season as possible.

In our opinion diversified farming and fruit growing by the individual producers and distributing direct to the retail dealer and consumer, and by co-operation on these lines would permanently relieve the "high cost of living" and make a fairer division of the "Consumer's Dollar."

The present unfair and wasteful system of marketing in this country can only prove disastrous in the future for all, as all production and distribution is manipulated and officiated by the politician for the speculators and non-producers, who are not very extensive consumers, except of time, as their desire for money is stronger than their appetite for food, and they need mostly wind and leg muscle to stand around and manage.

There are only the "favored few" fruit growers who can operate an orchard, planted in the usual way, of one variety, and market the product under the present conditions in the principal American markets and make a profit over cost of production, and to avoid the present unfair and wasteful marketing system, which is destroying these industries, we must plan our orchards so that we will have a complete enterprise of our own, be in business for ourselves, and not be subservient to the speculators as our guardians in market; and to do this we must go completely into the fruit business as a producer and a jobber of a complete line of our products.

Every orchard successfully produced on these lines, and the product intelligently marketed direct to retail dealer and consumer, is a vital and important unit of economic production of vital importance in the commerce and society of the Nation.

In a locality sufficiently exempt from frost to grow the Avocado and Mango successfully, the Avocado should be planted in rows to themselves, and pineapples or any

Trapp Avocado Trees at Tropical Grove. Temperature, 25° F. in February. Not Pruned. Photographed August, 1917.

kind of vegetable crop that can be produced profitably can be grown between the trees during the first four or five years after planting.

And as many standard varieties of Grapefruit and Oranges as will extend their season over as long a period as is possible of each; and plant the standard commercial varieties of Mango in the same block with the Grapefruit and Oranges, by planting a Mango and an Orange tree alternately in each alternate row, and a Grapefruit and an Orange tree alternately in the row between.

The diagram below will more fully explain the plan proposed. The places marked A are for Avocado trees; the places marked M are for Mango trees; the places marked O are for Orange trees, and the places marked G are for Grapefruit trees.

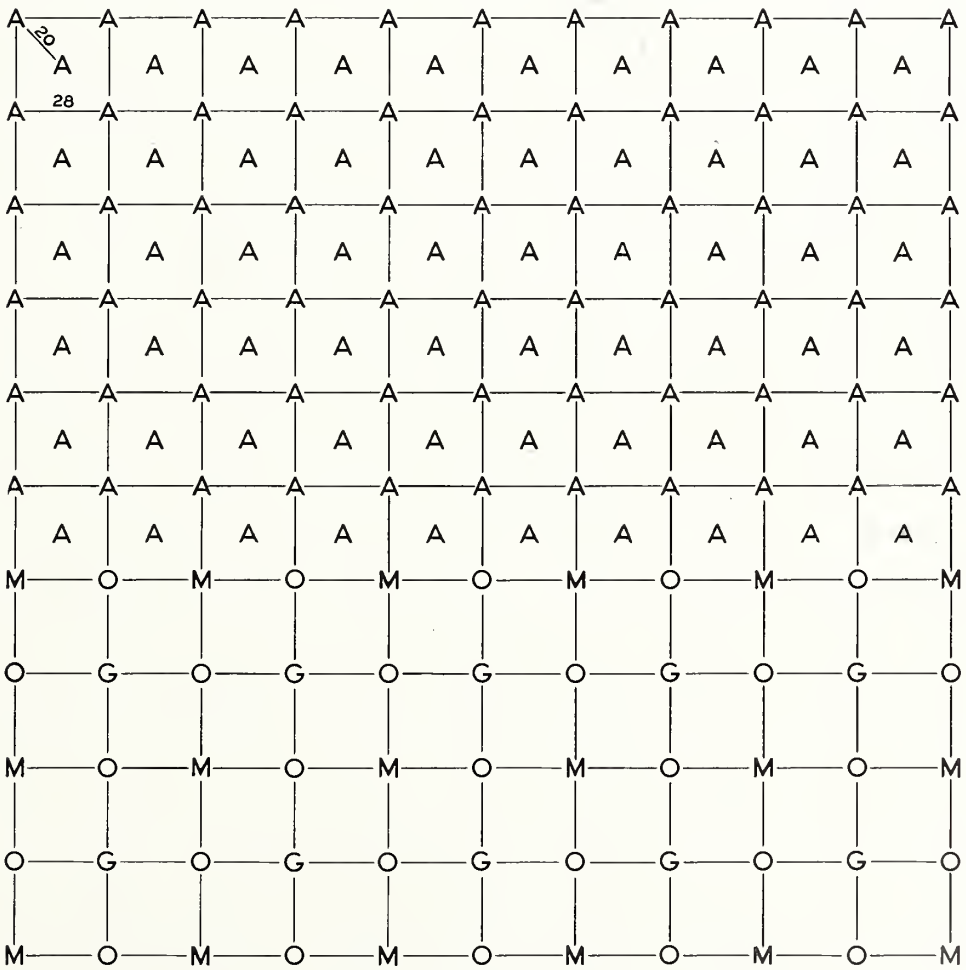



Diagram of Orchard.

The selection of young trees produced by asexual propagation, true to name, of successful variety, of strong vitality, and best condition for planting, which forms the foundation of your orchard, has very strong relations to the future success of an orchard, and cannot be substituted by any future treatment.

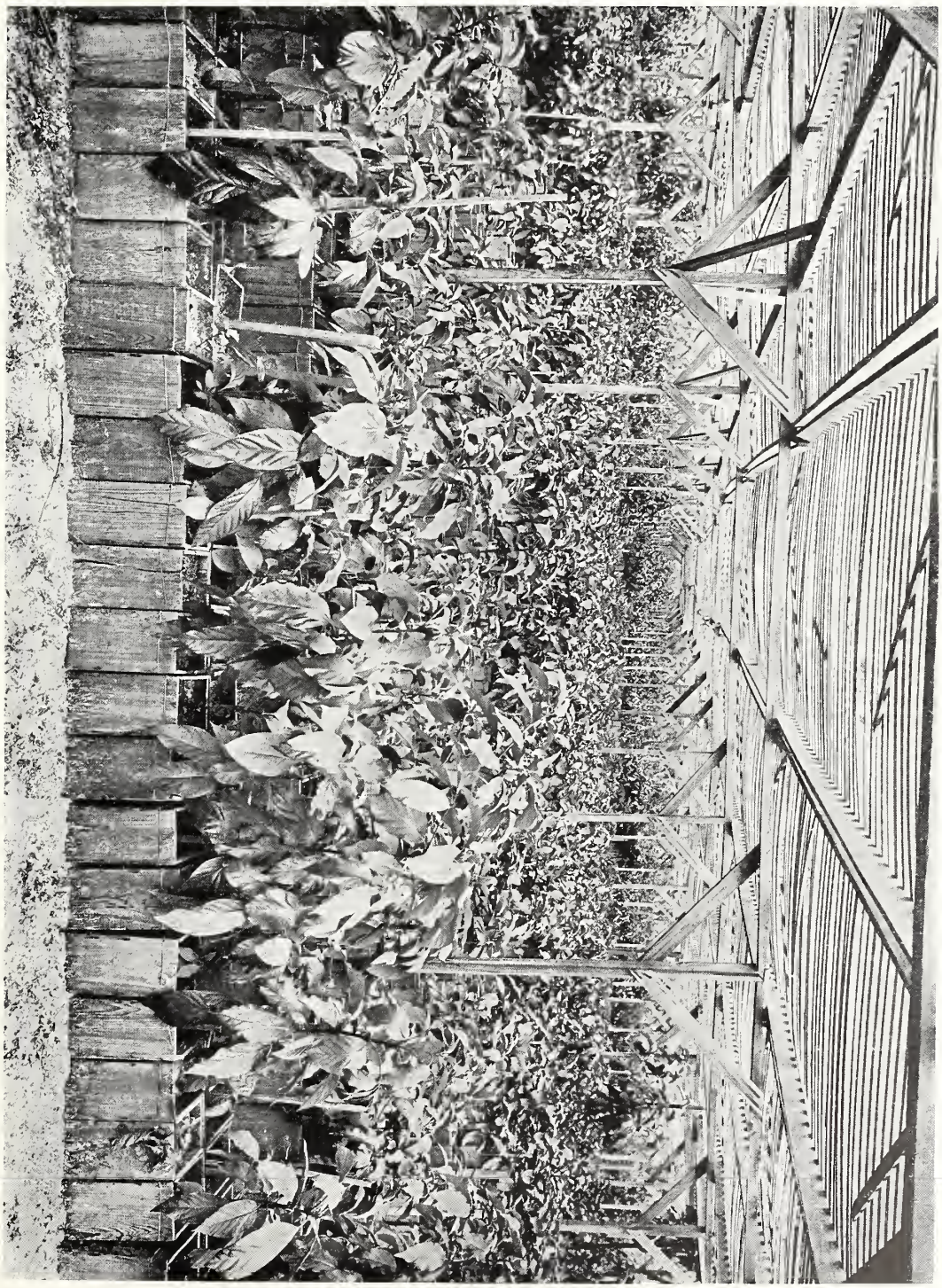
The production of such nursery trees is a special branch of business requiring special talent, experience, and equipment, and the most profitable things for us to do are those we are most capable of doing well.

The plans here proposed for a commercial orchard are not intended for those going into the production of nursery trees, which requires the equipment of an entirely different plant from that necessary for fruit growing.

It would be very poor business judgment for anyone wanting a suit of clothes to start a sheep ranch, then a woolen mill, and then a tailor shop, in preference to going direct to a reliable tailor and getting the clothes desired made to fit. For the same business reasons the fruit grower should go to a nurseryman with the ability and equipment, whose reputation is a sufficient guarantee on each tree for the quality and variety sold, and buy the trees wanted to serve the purposes desired.

The varieties of Avocado to plant to make the most complete succession at this time in the order of their season are as follows:

Pollock, Trapp, Solano and Taft, and the Mangos to plant are the Haden and Mulgoba; these are the only varieties fully tested at this time that are without one or more serious commercial defects.



Budded Avocado Trees in Nursery at Tropical Grove.

# Planting Avocado and Mango Trees

If Avocado and Mango trees have been properly produced and prepared for planting, they can be set successfully in orchard at any season of the year if proper attention is given them.

Orders for these trees should be given as far in advance of planting time as possible, and the nurseryman consulted before date of delivery as to the condition of the trees, and greater care should be exercised in planting them than for any other kind of fruit trees, as they are more difficult to transplant, and very expensive to produce and carry in nursery.

The most unfavorable season for planting Avocado and Mango trees in orchard is from March 1st to May 1st, and this is the season that most of our people with Northern experience generally want to plant these trees.

The next most unfavorable season is from July 1st to September 1st, but they can be set successfully at that time if shaded from the noonday sun and properly watered.

The most favorable season for planting these trees is from September 1st to March 1st, and the next most favorable season is from May 1st to July 1st.

When trees are received growing in wooden boxes, which is the proper way they should be produced, they should be well watered, and if the soil in the boxes should have been loosened by rough handling, they should be set in a cool, shady place and remain there long enough for the soil to become well settled again; water them lightly each alternate day until ready for planting in orchard places, then the soil in the box should be made very wet.

The holes should be dug just ahead of the planting. Place the box containing the tree in the hole to get the depth right, which should be the same depth that they are growing in the soil in the boxes or a little deeper, and if they are likely at any time to be injured by frost, set them 1 inch deeper to let the bud joint under or near the surface of the ground, to save the bud should they be injured by cold at any time.

Pry off any strips of wood or hoops nailed on the outside of the box that would prevent the splitting of the box from top to bottom, then pour a half bucket of water in the bottom of the hole. When the hole is prepared, place the box containing the tree on one knee, the tree extending under the left arm. Knock off the bottom with the edge of a hatchet, place the right hand under the bottom of the box, and let it down in the hole in the position it is to grow. Then fill in the soil around the box, pouring in water from time to time, enough to thoroughly wet and pack the soil. Leave the top of the box exposed an inch or so above ground.

With soil taken 3 or 4 feet from the tree form a "plump" rim, forming a basin, with the tree in the center, and large enough to hold two pails of water that should be applied at once.

If the planting is done in the hot summer months, a shade should be provided on the south side sufficient to prevent direct sunshine in the middle of the day, but allowing plenty of light and air, leaving this shade until the tree is well established.

Apply at least one 12-quart bucket of water each alternate day during the first week after setting the tree and one every third day during the next week, and one each week thereafter, during the first year; when it does not rain sufficient to wet the soil thoroughly, do not wait to see the tree wilt before watering; it is too late then to water Avocado and Mango trees.

If the land is very poor where trees are planted, apply before basin is formed around the tree for watering, 1 to 2 pounds of commercial fertilizer, or a shovelful of compost on the outside of the box, and mix it well with the soil.

From thirty to sixty days after planting, split the box with a hatchet on all sides into narrow strips, and as you pull these pieces out, fill in the soil, and wet it well, and continue the watering as above.

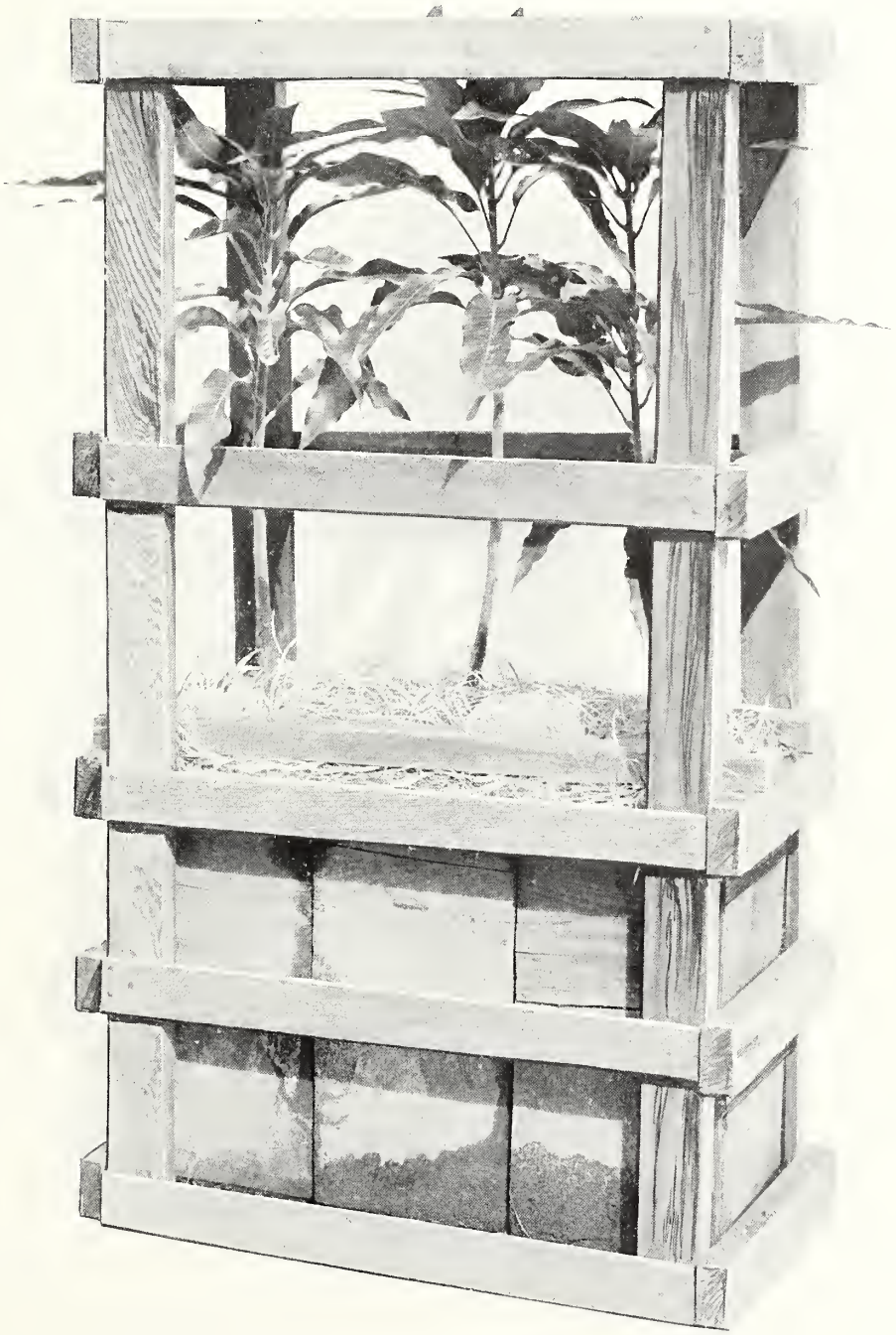
When the trees are well established, remove the banks or basin from around the trees, leveling the ground to conform to level of the surroundings, then apply 2 to 3 pounds of fertilizer, analyzing about 4 per cent. Ammonia, 6 per cent. Phosphoric Acid, and 4 per cent. Potash. Spread over a space 3 or 4 feet in all directions from the tree and work it well into the soil.

All future applications of fertilizer will depend upon the appearance and development of the trees.

Avocado trees require more Ammonia and less Potash than other fruit trees, and should have clean, mellow culture, unless the land is kept sufficiently mulched to keep down growths of weeds and grass.

Mango trees require but little Ammonia and more Phosphoric Acid and Potash in fertilizer, and only enough shallow cultivation is required to keep grass and weeds from growing.

In a climate where the temperature is likely to be lower than 35 degrees Fahrenheit above zero in winter, Mango trees, and Avocadoes of the South American type, and Avocadoes of the Guatemala type at a temperature of 30 degrees, and Avocadoes of the Mexican type at a temperature of 25 degrees, should be protected for the first two or three winters after planting, which can be done cheapest by driving a stake 5 to 6 feet high within 4 to 6 inches of the tree; a long tapering sharp point should be



Crate of Trees Ready for Shipment.

made on the end that is to be driven in the ground. If available, young spruce or pine trees leaned up with the top tied to the stake above the tree, with the bottoms resting on the ground completely covering the trees except a narrow space on the south to admit light and air.

In the absence of suitable pine or spruce trees, in addition to the stake near the tree, put five or six short stakes, driving them firmly around in a circle with the tops leaning from the large stake and far enough away from the tall stake in the center, which should be tall enough that a straight line from the base of the small stakes to the top of the center stake will pass 18 to 24 inches above all of the foliage of the tree. Then tie a strong cord from the base of each small stake in the circle to the tall stake in the center, and then cover the whole framework made by the cords with burlap, cheese-cloth, or any kind of cloth of sufficient weight to keep out the frost, leaving a space open at the bottom 5 or 6 inches. The cloth should be tied to each stake with a string and pinned securely to the cords with a No. 3 fine nail by sticking in the cloth as you would use a common clothes-pin, making the two edges of the cloth come together on the southwest or southeast side and turn one edge back to leave an opening on the south side like a tent door, which should be left open when there is no danger of cold. No part of the cover must touch the tree or its foliage if the cloth cover is used.

When very low freezing temperatures are expected place a bank of soil a foot or so high around the stem of each tree in November and remove it after February 15th; this is to be done in addition to any other protection that may be used.

# Care of an Orchard

The knowledge which we acquire through college or treatise can only be used in any line of business as a beginning.

There can be no fixed rules laid down in farming and fruit growing to convey the knowledge required to do things economically and successfully. The conditions are varying so much at all times that intelligent advice cannot be given on details except from observations at the time on the ground, by a farmer or fruit grower, who can show you easier than tell you, and no one else knows "how."

Information gained otherwise than from actual experience is useful only as general education, and is deficient in the actual operation of any kind of business. If we have not this practical knowledge we must acquire it for ourselves with time spent at the work, or hire it from those who have acquired it in the same way.

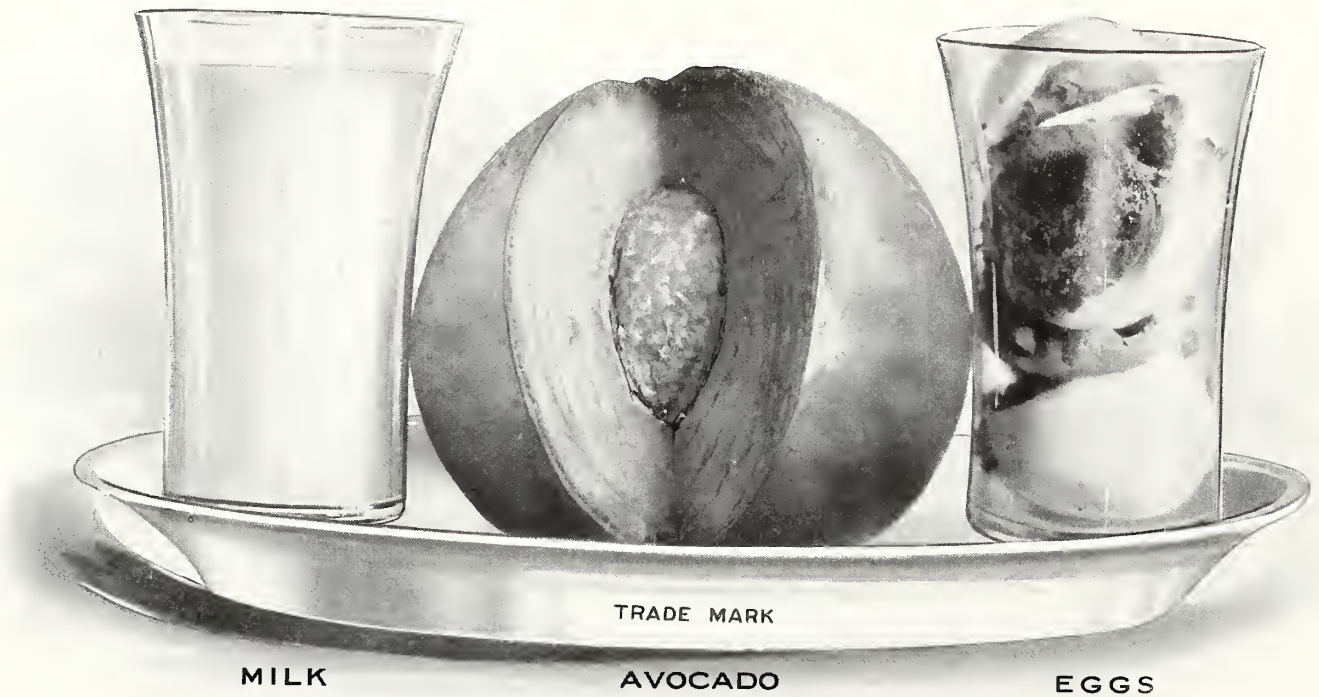
The knowledge required for successful farming and fruit growing cannot be conveyed by lecture or treatise, and relying on this method by the most popular and dominating element at this time is doing more to undermine the agriculture and horticulture of this country than any other influence in operation; there is no other business that would put such incompetent services in charge of their affairs.

The suggestions here offered for the operation of an orchard are intended to apply to fruit growing in South Florida, and we can only make them here in a brief and general way.

The most desirable fruit lands in this section are described as hammock, sandy loam, and rock and sand loam, all of these lands are deficient in plant food, and after cultivation for a few years in humus, and for successful production of any kind of fruit we must apply fertilizers intelligently from the very beginning to the most advanced stage of a fruit orchard.

The index to the time, amount, and kind of fertilizer to be applied is indicated by the character and appearance of the growth, shape, and color of stems, branches, and leaves of a plant or tree, and can only be determined intelligently at the time by those who know from knowledge gained from experience by association with that particular plant or tree, and there are none that know any too much for the welfare of the plant or trees.

A fertilizer containing 2 to 4 per cent. of Ammonia, 3 to 4 per cent. Potash, and 6 to 8 per cent. Phosphoric Acid is safe to be applied to any kind of fruit tree if not applied too close to the tree, in too large a quantity, or too often, and an application of




**Nature's most complete foods. Either with air and water furnishes the necessary elements to sustain life, energy and intellect.**

GEO. B. CELLON, MIAMI, FLA

dairy or horse stable manure once in three to five years spread lightly over an orchard on any South Florida soil, except hammock or muck soils, will benefit the orchard. The sources or materials from or of which fertilizers are composed should be changed at least once each year, especially the organic materials in the mixture, as well as the amount applied to produce best results.

There are generally enough humus in soils for the necessities of fruit trees to five years after clearing the land, and during this time clean shallow surface culture is generally most desirable, especially if cropping is done between the trees.

Plowing or disking more than 3 to 4 inches deep in any orchard is injurious to any kind of fruit trees on these soils after their lateral root system is formed until the trees are very old and have what is called matted root sod, when they will begin to fail to produce normal quantity of fruit by necessary fertilizing; we then tear up this root sod, what is called renovating an old orchard.

In our opinion best results cannot be obtained on South Florida sandy soils where weeds and grass or any other vegetation are allowed to grow and take plant food and moisture from the trees in their growing season; weeds and grass or other vegetation should not be allowed in an orchard except when a check in the growth of the trees is desirable.

The most desirable culture of an orchard on any South Florida soil, when it is practical, is to keep it free from weeds and grass, and plant vegetable crops between the trees for the first three or four years, and then bring in from the outside any kind of trash composed of vegetable matter and cover the whole surface of the orchard sufficiently thick that with little hoeing after that time will keep it free from weeds and grass; we do not believe that trash to mulch the orchard can be grown in the orchard profitably on Florida sandy soils.

# The Avocado

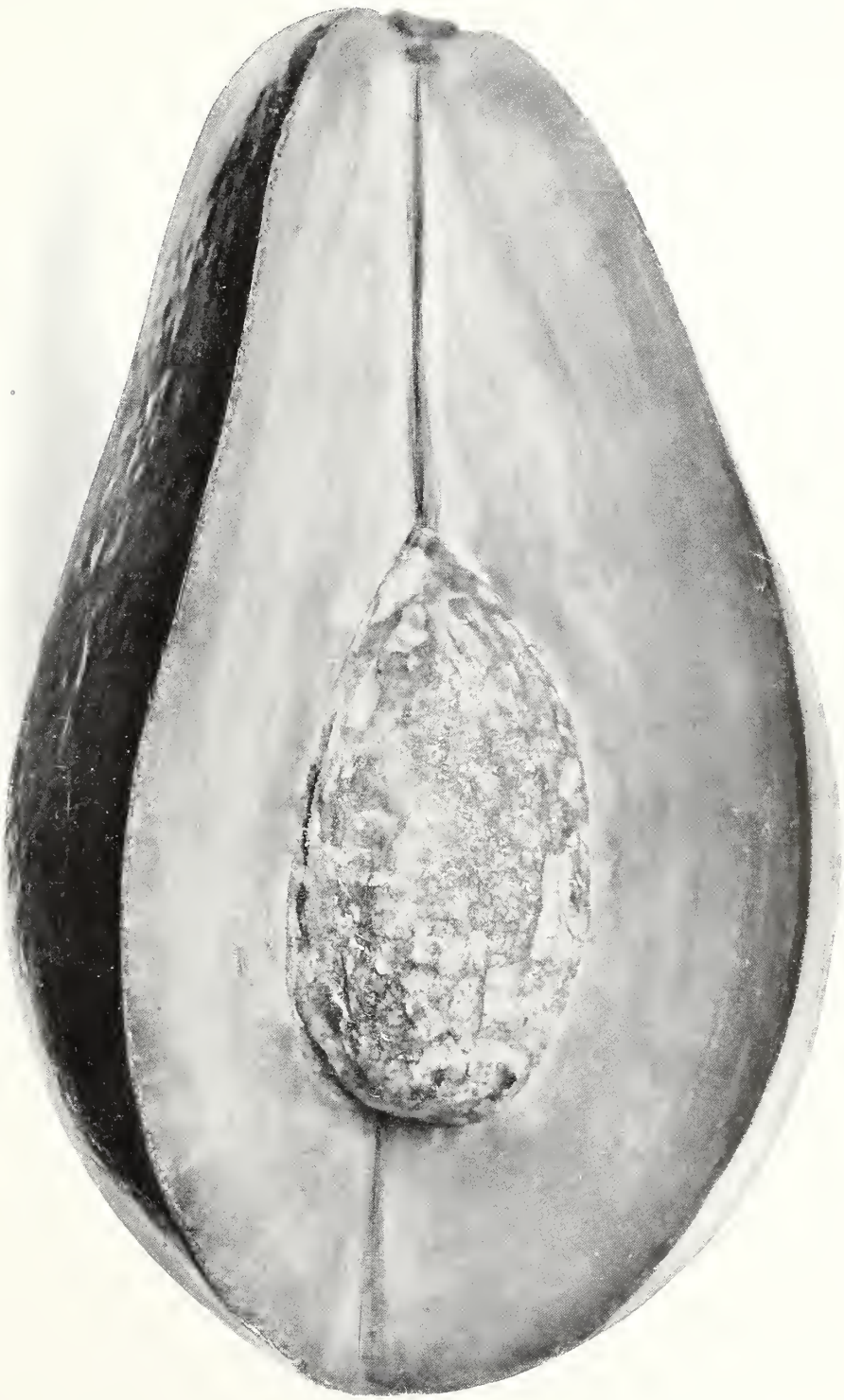
The Avocado has no doubt been burdened with more names than any other fruit now under cultivation. The type now under commercial cultivation in Florida is botanically classified as "Persea Gratissima," and all of the species belong to the Laurel family of plants.

The name most extensively applied to this fruit in North, Central, and South America, Mexico, the West India and South Sea Islands is, by the Spanish-speaking people, "Aguacate." The name "Avocado" is used by the English-speaking people; the name "Alligator Pear" is a misnomer or slang, possibly growing out of a misunderstanding of the Spanish and English names, and is often applied to this fruit by the English-speaking people of the British West Indies and in the United States.

"A rose by any other name would smell as sweet," but after this, the most nutritious of all fruits, has been assimilated and distributed to the living cells of our body, and the demand for food and nourishment is again expressed by hunger, we know then that we want "more."

It is our opinion that by the introduction into cultivation of the commercial varieties of the Guatemala type, making a continuous season through the year, makes the Avocado the most important food fruit that has ever been put under cultivation.

For comparison we give the analysis of Milk and Eggs, which with the Avocado are the most complete articles of food known to chemistry and practice.



Pollock Avocado.

# Analyses

| Avocado (eatable pulp). | Per cent. |
|---|---|
| Water | 72.8 |
| Protein | 2.2 |
| Fats | 17.3 |
| Carbohydrates | 4.4 |
| Crude Fiber | 1.9 |
| Ash | 1.4 |

Analysis by Florida Experiment Station, Report 1902, published by U. S. Department of Agriculture, Bulletin 77, page 46.

| Eggs (whole). | Per cent. |
|---|---|
| Water | 73.7 |
| Protein | 14.8 |
| Fats | 10.5 |
| Ash | 1.0 |

| Milk (cow). | Per cent. |
|---|---|
| Water | 87.0 |
| Protein | 3.3 |
| Fats | 4.0 |
| Carbohydrates | 5.0 |
| Ash | 0.7 |

Analysis by United States Department of Agriculture Experiment Station, by C. F. Langsworthy, Experiment Chemist, published in charts of the Department to show relative nutritive value of foods.

The eggs contain a combination of substances intended by Nature, with the action of heat and moisture, to revert into life and activity.

Milk contains the natural substances in the most correct proportions to build, sustain, and repair friction from action in animal life, especially in its infantile stages.

Avocado contains the elements of food intended by Nature to build, sustain, and repair animal life in its advanced stages, when friction is greatest by the activities of life.

# How to Prepare and Eat the Avocado

The Avocado does not cook, preserve, or can to any advantage, therefore should be eaten as fresh fruit.

The color of the fruit, which should be green, does not change when it approaches the edible stage.

Under natural conditions it is never ready to eat as it is taken from the tree; the stage at which it should be eaten is more appropriately described as "mellow," which is just as soon as you can feel the pulp break down under pressure of the fingers, and while all the natural color is still intact. Before the pulp is fully mellow or after it is watery soft it is not palatable.

To be served as a breakfast fruit, for which purpose it is very much appreciated; if practicable, after the fruit is "mellow," put it on ice long enough for it to get cool, then cut the fruit in halves, take out the seed and thin brown lining, put lime or lemon juice in the seed cavity or sprinkle salt or pepper or sugar over the pulp, according to taste; serve on a dessert dish and eat with a spoon.

For salads, serve with either lime or lemon juice, salt, pepper, chopped onions, or any other kind of salad dressing, according to taste.

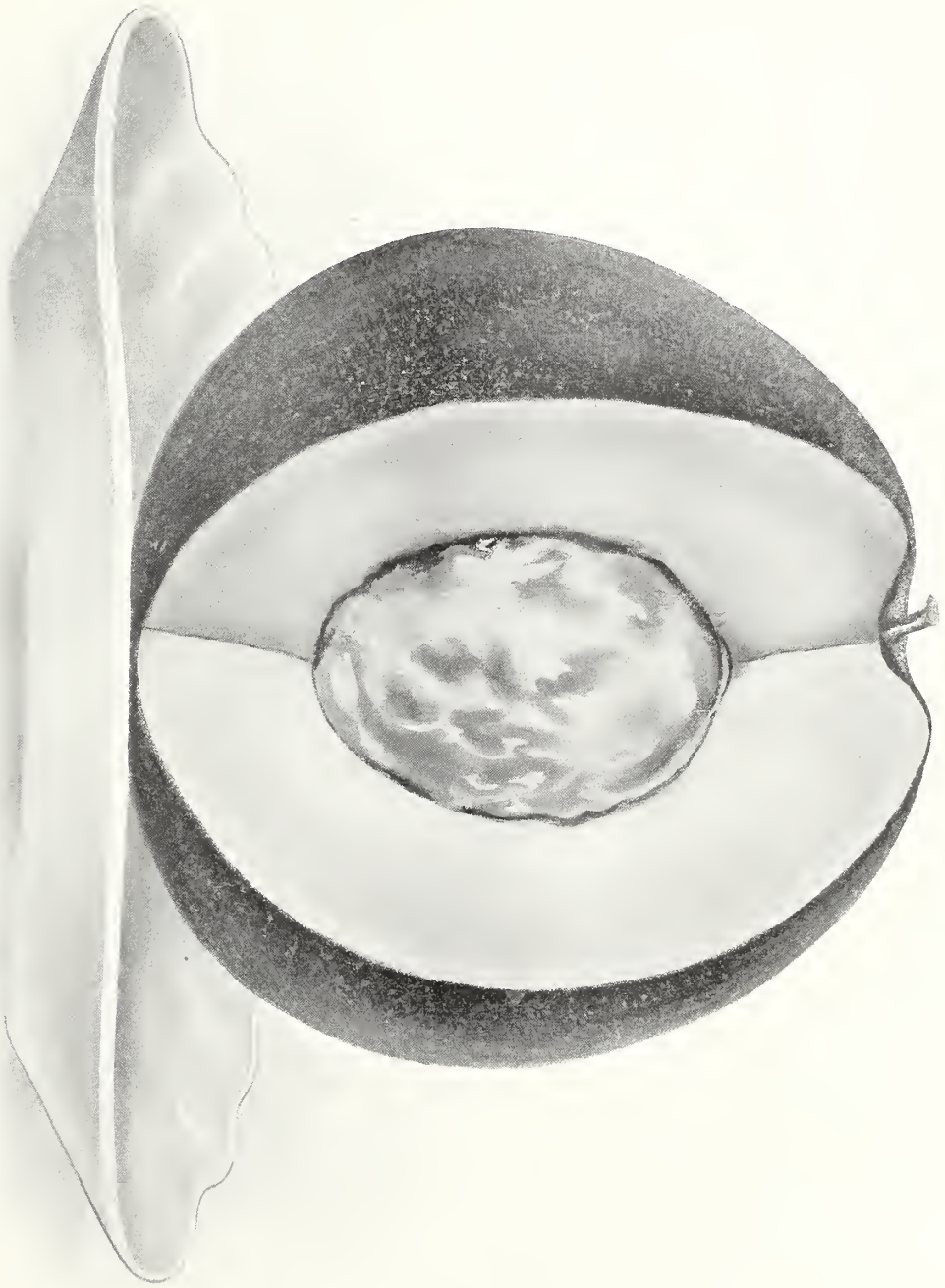
The fruit should be bought, if possible, from the dealer while solid or firm and kept until ready to be used.

If you want to hasten developments, put it in a moderately warm place in the kitchen.

The fruit not needed for use at once will keep longer in a cool place in the pantry or cellar, but never put them near the ice until the fruit is mellow enough to be eaten, but when ready to be eaten by putting them on ice they may be kept in good condition for several days.

Well-developed fruit of the best varieties, properly served, has a very attractive nutty flavor that delights many people at first; still there are others to whom when tasted for the first time, the appetite may be a little cautious, but afterward to all it becomes very palatable and as much appreciated as any other article of food.

The most delicately constituted person, even small children and invalids, can eat the Avocado freely without fear of ill effects, as we know of no one that has suffered any discomfort from eating it when the fruit is in proper condition, but instead it furnishes the most complete nutrition of any food now known.



Trapp Avocado.

## Types and Varieties of Avocadoes

For the convenience in the distinction of the Avocado, or fruit-bearing Perseas, we divide them into types, each type is composed of as many varieties as there are seedling trees; the varieties of commercial value we give individual names to distinguish them separately, and propagate them by budding and grafting the trees to reproduce them true to variety, the same as other commercial fruits, as a tree grown from seed will not reproduce the variety of fruit planted.

The name given the different types of Avocado is generally that of the country in which the type is a wild native tree.

The different types of Avocado have been spread more or less over all the Avocado-growing countries.

There is one well-defined type known to us at this time that has not yet been named, and at the present stage of our test of several varieties here which comes to us from the Hawaiian Islands, we believe will furnish us, when the right variety is secured, the earliest commercial variety of Avocado for Florida.

This type is distinguished by its large, rank, stubby habits of growth, with large terminal points of branches, and its large, long, and broad leaves which are slightly fuzzy underneath.

From the varieties of this type now in Florida we consider it adapted to our climate and soil, but so far have not found a variety up to our standard of a commercial Avocado, the defects so far being in the color and shape of the fruit of the varieties fruited here at this time.

And there has been recently discovered by Mr. Wilson Popenoe, of the U. S. Department of Agriculture, what appears to be a new unnamed type of Avocado, or Persea, bearing edible fruit, now in Guatemala, Central America, of which at this time but little is known, but will likely be introduced and tested by the Department.

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## Mexican Type of Avocado

The Mexican is the hardiest of any of the types of Avocadoes known; it will stand 6 to 8 degrees lower temperature than the South American type, and its hardiness is the strongest point of value, as there are no varieties yet tested of commercial value except for nearby markets, as they do not have the carrying qualities.

This type can be distinguished by the thin, smooth, glossy skin of the fruit, with only a single coating over the seed, which usually fits tight in the seed cavity.

The tree has slender, thin-skinned terminal branches, and the leaves are smaller and more slender as a rule than other types, and both bark and leaves and fruit have a strong spicy odor resembling the odor of Sweet Bay and Sassafras trees, to which it is more closely related than other types.

Varieties of this type in Florida have a strong tendency to bloom at different seasons, making a variation of their fruit maturing season, but the fruit season generally of this type is from May to September in Florida.

## South American Type of Avocado

All of the reliable reports by the writers show that this type of Avocado was distributed to the West Indian Islands and to Florida, came originally from South America, and is a wild native of that country.

The tree of the South American type is the most susceptible to cold of any of the types, and can be distinguished by the fruit having rather smooth skin of medium thickness which is pliable and leathery; this type generally has a rather larger seed than the other type in proportion to size of the fruit, and the seed has one thin and one thick corky covering over the seed, which often fits loosely in the seed cavity.

The trees are healthy, vigorous growers in Florida and have formed the basis of this industry and the introduction of this fruit into the markets of the United States.

The season of the fruit of the South American type in Florida is from July to December.

## Guatemala Type of Avocado

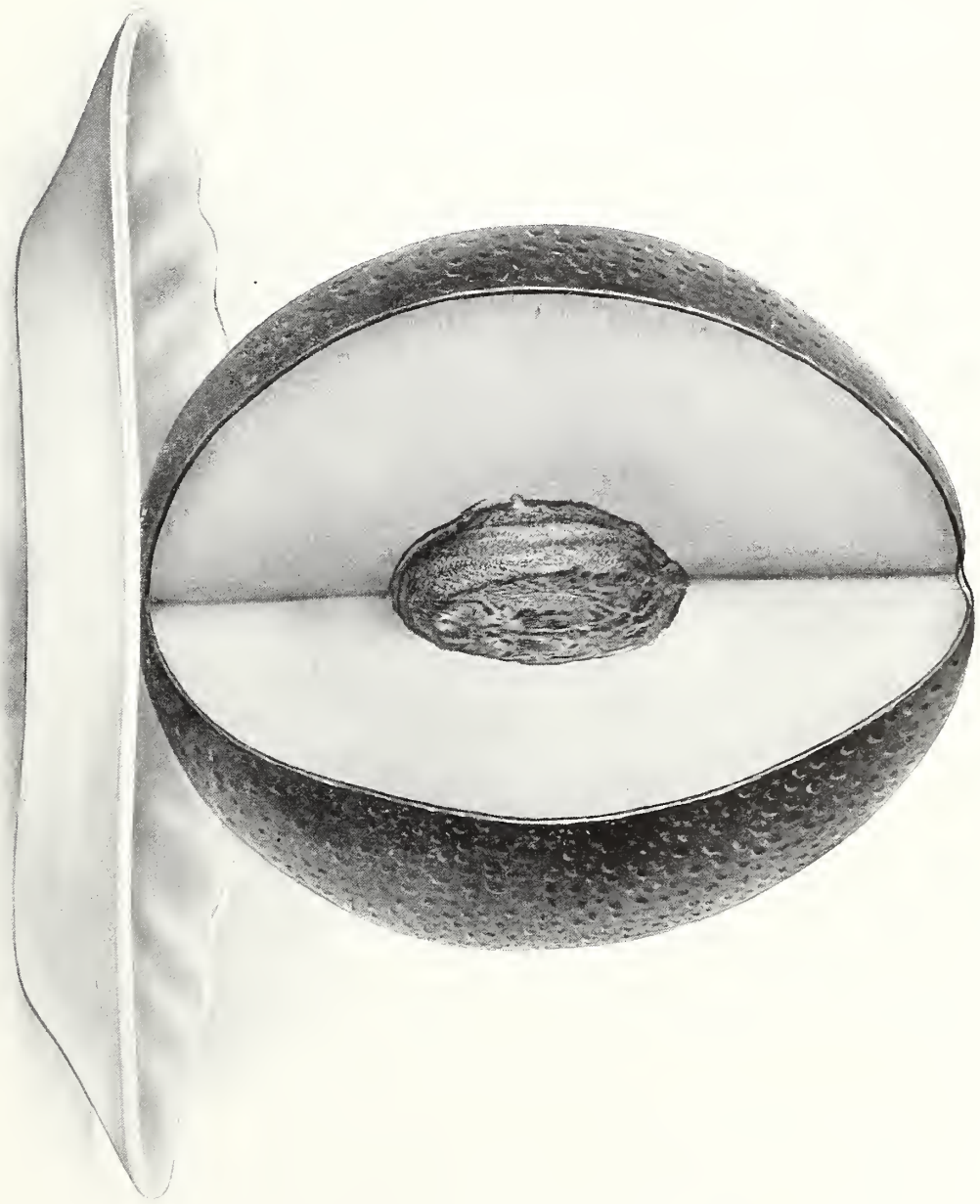
The Guatemala type of Avocado is a wild native of Guatemala, Central America, but has spread under cultivation to all the Central American countries, parts of South America, Mexico, and more recently introduced into California and Florida, and the West India and Hawaiian Islands.

This and the South American type furnish varieties of the highest commercial value of any of the types now under cultivation.

The Guatemala type can be distinguished by the fruit having usually thick, brittle skin, more or less rough on the surface, and a single thin coating over the seed, which generally fits tight in the seed cavity; the habits of growth of the tree is more or less slender, smooth, and thin bark on terminal points of branches, with leaves more or less slender and glossy green on upper surface, and the season of maturity of their fruit in Florida in the different varieties extends from November to June.

Many varieties of this type, the trees will not grow in Florida, but there are a great many varieties that grow as strong, vigorous, and healthy here as any of the other types, producing fruit of the highest quality and greatest value of any under cultivation.

Trees of Guatemala type are hardier than the South American type and will stand from 3 to 5 degrees lower temperature.



Solano Avocado.

## Commercial Varieties of Avocado

We cannot get one variety of any kind of fruit supplying all the market demands at all seasons, but it is not necessary or profitable to plant only a sufficient number of varieties to supply the grade required at all seasons.

Growers with consideration for the consumer, and pride for their product, will not plant purple or black varieties of Avocado, as they produce complications in the markets that cannot be overcome except by plentiful supply of green colored fruit, and there is no good business reason for planting purple or black varieties, as we have green varieties equal on all other commercial points, and with the advantage of being more attractive and of edible appearance.

Avocadoes when shipped to distant markets and reaching the edible stage do not retain the luster that they have on our trees, and while there are but very few people that could tell a green colored Avocado from a purple one if they saw it with the skin off, it is also true that very few people could tell on a fruit stand a purple Avocado from a rotten green one, and too often the latter is sold and served for the former, which will always have a depressing influence on the consumption of this fruit.

The four varieties described below are as free from commercial defects as we generally find in commercial varieties of any kind of fruit, and these varieties of Avocado have the strongest combination of special points of value, making them superior to any varieties yet tested under Florida conditions. We list them in the order that they mature their fruit in South Florida.

## Pollock Avocado

The Pollock Avocado is of the South American type. It was originated by the late Mr. H. S. Pollock, of Miami, Florida, for whom it was named. It is oblong, thick-necked in shape, very large; average weight, when fully matured, $2\frac{1}{2}$ pounds. Single specimens have weighed $3\frac{3}{4}$ pounds. Skin smooth, dark green in color. Meat very thick, of a rich golden-yellow color, with narrow green streak next to the skin; seed medium small, fitting perfectly in cavity without space; meat proportions very good. Flavor mild, rich, and melting, free from fiber; quality best; season from July to September. Tree a very vigorous grower, early and prolific bearer.

Pollock is a very vigorous tree, produces large fruits, and requires more plant food than other Avocadoes, and if furnished, is a very regular and prolific bearer.

This is the earliest variety yet tested of the South American type, producing fruit of best commercial quality in its season, and its market value and importance has not been understood and appreciated by the growers, and our markets are not supplied with high-grade fruit in its season.

## Trapp Avocado

The Trapp Avocado was originated by the late Mr. C. L. Trapp, of Cocoanut Grove, Florida, whose name it bears. It is of the South American type; shape nearly round, slightly distended at stem end, with very slight oblique flattening at blossom end. Average weight, 1½ pounds. Weight, size, and shape very uniform. Color, dark green. Smooth, thin skin of firm structure. Meat thick, rich golden-yellow color; texture smooth, fine grain, free from fiber, firm but rich and melting, with the exquisite delicate buttery and nutty flavor so much appreciated in the Avocado. Seed medium large, fitting perfectly and firmly in its cavity without space. Quality the very best. Tree a vigorous, prolific, regular, and heavy bearer. Season, October 1st to December, and "hangs on well."

This variety at this time is the most extensively planted in commercial orchards in Florida and is the standard of quality of the South American type and in markets in its season.

## Solano Avocado

The Solano Avocado is of the Guatemala type; was originated by Mr. Alfred Solano at Hollywood, California, whose name it bears. Shape oval, oblong, nearly round, slightly distended at stem end, with slight oblique flattening at blossom end. Weight, 1 to 1½ pounds; color, dark green; skin thick, of firm substance, slightly roughened, with small brown dots; meat very thick, cream yellow in color; texture, smooth fine grain, free from fiber, with rich buttery nutty flavor, so much appreciated in the Avocado, and is superior in quality of flavor to any variety of the South American type that we have tested. Seed very small, oval, fitting perfectly in seed cavity, has the greatest amount of flesh in proportion to size of any Avocado that we have tested. Tree healthy, vigorous, and strong grower, and an "athlete" in form of structure, and a prolific bearer. Season in Florida, January to April.

November to February

## Taft Avocado

The Taft Avocado is of the Guatemala type; was originated by Mr. C. P. Taft at Orange, California, whose name it bears. Weight, 1 to 1½ pounds, broadly pear-formed, slightly necked; color, dark green; surface slightly roughened, skin medium thick and firm; flesh light yellow color, texture smooth and melting, and without fiber, of rich buttery and nutty flavor, so much appreciated in Avocadoes; seed medium size, fitting tightly in cavity. The tree is a strong grower in Florida on heavy soils, but not so good on the light sandy soils.

Haden Mango.

# Promising New Varieties of Avocado

The varieties listed below under our grove and nursery numbers are not fully tested in Florida, but have proven to be in habits of growth well adapted here, and should they prove true to description, and conform in season to our market, would be desirable varieties.

## Number 6

Described as follows: Of the Guatemala type, shape round, color green, weight 1 to 1½ pounds, surface nearly smooth, flesh of best quality, free from fiber; seed medium, fitting tightly in cavity; tree a strong, healthy, vigorous grower in Florida.

## Number 33

Described as follows: Of the Guatemala type, shape round, weight 1 to 1½ pounds, surface roughened, green in color, flesh yellow, of fine quality, free from fiber; seed medium size, fitting tightly in cavity; tree a strong, healthy grower in Florida.

## Number 26

Described as follows: Of the Guatemala type, shape round, weight 1 to 1½ pounds, color green, skin thick, flesh yellow, of best quality; seed small, fitting in seed cavity; tree a good grower in Florida; from present indications this is one of the very latest varieties of Avocadoes.

## The Mango

The Mango (Mangifera Indica) is a native of East India, its culture has spread to other tropical countries by planting its seed, each seed producing a different variety, most degenerating to the wild jungle types, producing fruit with pulp embedded in a mass of hair-like fiber.

The pulp of nearly all varieties of Mangoes is, by the average person who has tasted it, termed good to eat, if we are willing to make the necessary sacrifice of eating it, but, as a commercial proposition, people are not willing to make these sacrifices, and pay for them; and it is also true that the most delightfully flavored varieties can be eaten without any sacrifice of dignity or comfort.

With many years of careful observation, by selection from the millions of varieties, we now have a few varieties of this, the most aristocratic of all fruits, now under cultivation, which comes up to the highest standard of appearance and structure, possessing the most delicious of flavors known to the most cultivated and refined tastes of our modern civilization.

We are now planting these choice varieties in commercial orchards with trees propagated by asexual methods which in every respect reproduces the true variety, but the quantity of these fine fruits has been so limited that it has been sold at prices that only the wealthy could afford it; but we hope in the near future that these delicious fruits will be produced in sufficient quantities for all.

At this time we have only two varieties of Mango under successful cultivation in this country that come up to the highest qualities of this the most delicious dessert fruit in the world, which are the following varieties:

## Haden

Originated from a seedling planted by the late Captain J. A. Haden, at Cocoanut Grove, Florida, whose name it bears. Size, medium to large; weight, 1 to 1½ pounds; shape, oblong, nearly round, only slightly impressed on one side at blossom end, which is nearly the same size in circumference as at the stem end, making it of convenient shape for packing; color, rich golden yellow, washed over the greater portion of surface with rich crimson and scarlet. Skin smooth, tough, and of firm substance, medium thick; flesh golden-yellow color; flavor rich, aromatic, and spicy. Seed medium small, fiber short and coarse, extending from thin edge of the seed; quality best. Season, June and July.

The fruit can be separated in halves and the seed extracted without leaving any fiber in the pulp, which can be eaten from the fruit with a spoon.

This is the most valuable commercial variety that has yet been fruited in this country.


Mulgoba Mango.

## Mulgoba

From India. Imported by the United States Department of Agriculture in 1889.

Size, medium to large; average weight, 1 pound. Shape, nearly round, obliquely impressed on one side, marked with very small protrusion at blossom point. Color, rich golden-yellow, washed with rich bright carmine on the side exposed to the light, fading to delicate pink tints, daintily dotted with very small brown dots over surface, with delicate purple bloom. Skin smooth, thin, but firm and of good substance. Flesh rich, golden-yellow color; smooth, rich, tender, melting, sweet and delicious, with delicate, sparkling, spicy perfumed aroma. Fiber short and coarse, extending from the thin edges of a medium small and thin seed. Quality, very best. Can be easily separated in halves and the seed extracted without leaving any fiber in the pulp, which can be eaten from the fruit with a spoon. Season, July and August.

After you have tasted either of these varieties you will agree to all the great things that have been said of this great fruit.

The strongest evidence of the superior commercial merits of the aristocratic varieties of the Mango is in the fact that it has always been and is still, by introducers, propagators, growers and dealers, the subject of the most humbugging of any fruit under cultivation.

Throughout the history of the Mango, just as soon as a variety of superior merit began to gain its deserved commercial prominence, countless numbers of degenerates and jungle varieties were crowded in for its place, under the name of Mango, or that applied to the successful variety.

It has been suggested by the honest fruit trade to drop the word Mango and only use the word "Mulgoba" in the commerce of this fruit, which would not furnish the desired remedy, but does at least impeach the integrity and honesty of the introducers, propagators, growers, and dealers in Mangoes.

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## How to Prepare and Eat the Mango

The fruit may be eaten from the hand, the same as a peach or plum, or can be served iced or not, as preferred, as follows:

To serve the fruit in halves, cut the fruit all around on the thin edge and into the thin edge of the seed, then take the fruit between the points of all your fingers, give each half a little turn in opposite directions, pull it apart, and then run the point of a spoon all around the edge and under the seed and lift it out.

Serve each half on a dish and dip the pulp from the fruit with a spoon, as you would a cantaloupe. Only a few of the finest varieties of Mangoes can be served in this way.

# Rules of Business

Visitors, whether prospective purchasers or otherwise, are at all times welcome.

TERMS OF SALE.—Our prices are net cash on all stocks as quoted. All orders for immediate delivery must be accompanied with cash for the full price of the trees ordered.

Orders for future delivery, when trees are produced in nursery, 25 per cent. of the price of the trees ordered must be paid and balance when ordered delivered.

Remittances by Bank Draft, Post-office, or Express Money Orders will insure our prompt attention.

AGENTS.—No agents are employed or authorized to represent us in any capacity; we hold ourselves personally responsible for purchase of trees direct from our nurseries only.

GUARANTEE.—We guarantee all stock to be well grown, true to name, properly packed and shipped according to instructions, but in no case will our liabilities be greater than the original price of the trees. Our liabilities cease upon the delivery of trees to forwarding companies.

PROVIDED, under the above and foregoing guarantee, that all claims arising thereunder must be made in due form in writing within ten days after the delivery of the trees to the purchaser.

I prefer that purchaser select trees at our nursery, but upon delivery otherwise, should the purchaser find from any fault of mine that the trees, by proper treatment by a practical experienced grower, could not be developed into successful orchard trees, and will destroy them completely within twenty-four hours after their delivery, and forward to us affidavits of the purchaser, and of an experienced practical grower of these kind of trees, setting forth the facts satisfactory to me, I will return the price paid for the trees and other necessary expenses incurred in their delivery.

No refund will be made on the opinion of diploma horticulturist, entomologist, pathologist, auditorium and sidewalk farmers, and fruit growers.

# Price List of Trees and Plants

## Revised November 1st, 1918

All varieties of Avocados listed, budded in direct lines from Original trees on stock of South American type, and Mango trees budded on Jungle Seedling Mango stock, growing in boxes 5x6x12 inches inside, 12 to 24 inches high $1.00 each at nursery, and purchaser to comply with rule four of Florida Plant Board, which requires all plants or trees to be covered when moved from one position to another anywhere.

Delivered at nursery covered or crated F. O. B. Miami, Florida, $1.25 each.

In carload lots F. O. B. Miami, Florida, $1.00 each.

GEO. B. CELLON,

Miami, Florida, November 1st, 1918.

# Price List of Trees and Plants

Prices in effect May 1, 1918, subject to change without notice.

Pollock, Trapp, and Solano Avocado trees budded in direct lines from original trees on stock of South American type, growing in boxes 5 x 6 x 12 inches inside, shipping weight 25 to 30 pounds each when crated for shipment, 12 to 24 inches high, $1.00 each at nursery, or F. O. B. Miami, Florida, in carload lots. Crated for shipment F. O. B. Miami, Florida, $1.25 each.

All varieties of Mango trees listed at same price as above, budded in direct lines from original trees on jungle seedling Mango stock, growing in wooden boxes, 5 x 6 x 12 inches inside, shipping weight 25 to 30 pounds each when crated for shipment.

All other varieties of Avocado trees listed, $1.50 each at nursery, $1.75 each F. O. B. Miami, Florida, crated for shipment.

Geo. B. Cellon

Miami, Fla., Nov. 1st, 1917

Established in 1901

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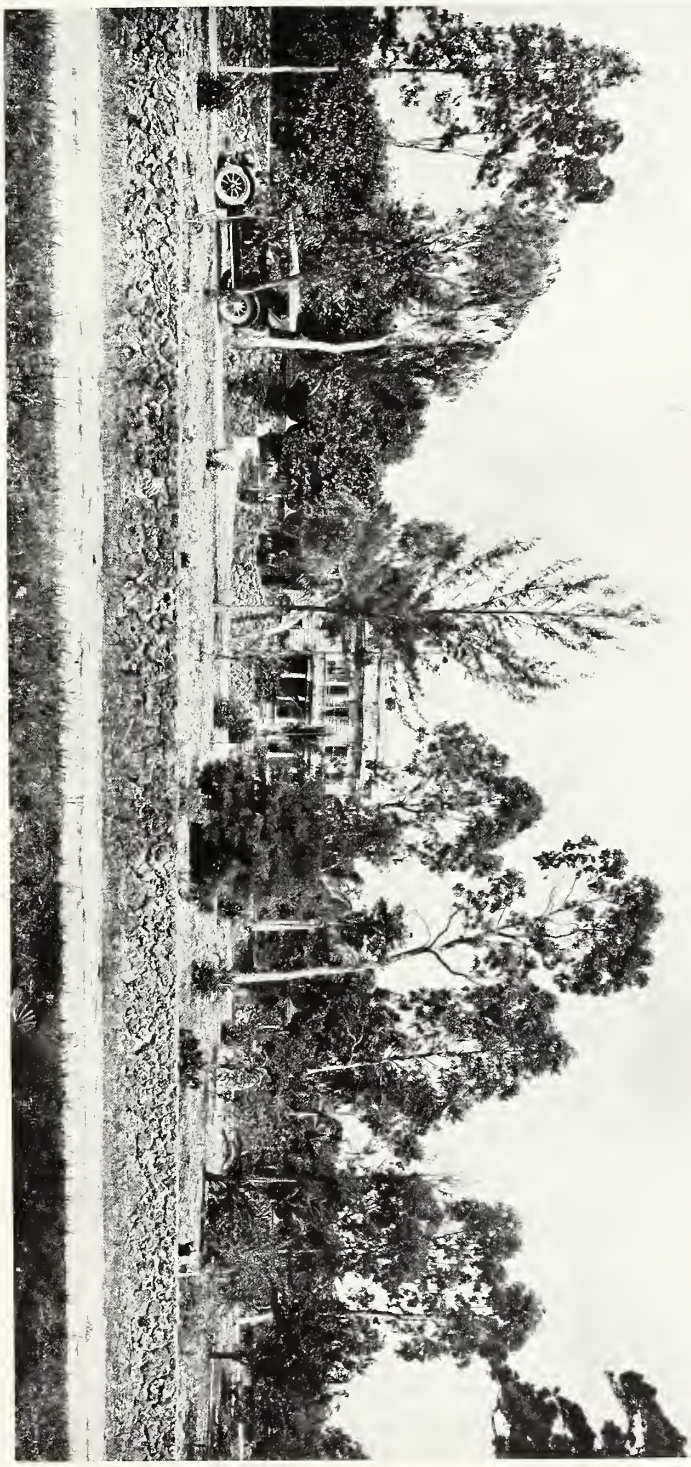

Tropical Grove. Call and See Us at Our Home. Temperature 25° F. in February. Photographed in August, 1917.